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## CLAIMS

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What is claimed is:

1. An Aqueous Film Forming Foam formulation comprising  $R_F$ - $Q_s$ , wherein:  $R_F$  has a greater affinity for a first part of a system having at least two parts than  $Q_s$ ;  $Q_s$  has a greater affinity for a second part of the system than  $R_F$ ; and  $R_F$  comprises at least two -CF<sub>3</sub> groups and at least two hydrogens.

- 2. The formulation of claim 1 wherein  $R_F$  is hydrophobic relative to  $Q_s$ .
- 3. The formulation of claim 1 wherein Q<sub>s</sub> is hydrophilic relative to R<sub>F</sub>.
- 4. The formulation of claim 1 wherein  $R_F$  is hydrophobic and  $Q_s$  is hydrophilic.
- 10 5. The formulation of claim 1 wherein R<sub>F</sub> comprises at least one -CH<sub>2</sub>- group.
  - 6. The formulation of claim 1 wherein R<sub>F</sub> comprises at least one cyclic group.
  - 7. The formulation of claim 6 wherein the cyclic group comprises an aromatic group.
- 15 8. The formulation of claim 1 wherein R<sub>F</sub> comprises at least one (CF<sub>3</sub>)<sub>2</sub>CF-group.
  - 9. The formulation of claim 1 wherein R<sub>F</sub> comprises at least three -CF<sub>3</sub> groups.
  - 10. The formulation of claim 1 wherein  $R_F$  comprises at least two  $(CF_3)_2CF$ -groups.
- 20 11. The formulation of claim 1 wherein R<sub>F</sub> comprises at least four carbons and one of the four carbons comprises a -CH<sub>2</sub>- group.

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13. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is

14. The formulation of claim 1 wherein  $R_F$ - $Q_S$  is  $R_F$ 

15. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $R_F$ 

16. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $R_F$ .

17. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $R_F$ 

18. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $R_F$ .

19. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $F_s$ 0 .

20. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is F<sub>3</sub>C Q<sub>s</sub>.

F<sub>3</sub>C CF<sub>3</sub> CCF<sub>3</sub> Q<sub>a</sub>

21. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is

22. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $F_3C \xrightarrow{CF_3} F$ 

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23. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is F

- 24. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is <sub>F</sub>
- 25. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is F  $Q_s$  F .
  - $F_3C \longrightarrow F_3C \longrightarrow F$  The formulation of claim 1 wherein  $R_F\text{-}Q_s$  is
- 5 27. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $F_s$ C  $CF_s$ .
  - 28. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $F_3$ C  $CF_3$ .
  - 29. The formulation of claim 1 wherein  $R_F\text{-}Q_s$  is  $F_3C \sum_{F_2}^{F_2} C \sum_{F_2}^{F_2} C \sum_{F_2}^{C} C \sum_{F_2}^{C$

  - 31. The formulation of claim 1 wherein  $R_F$ - $Q_s$  is  $F_3C$   $F_3C$   $F_3C$   $CF_3$  .

32. The formulation of claim 1 wherein  $R_F-Q_s$  is

$$F_3C$$
 $F_3C$ 
 $F$ 
 $CF_3$ 
 $CF_3$ 

- 33. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is
- 34. The formulation of claim 1 wherein R<sub>F</sub>-Q<sub>s</sub> is

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- 35. A process for providing an Aqueous Film Forming Foam formulation to a substrate, the Aqueous Film Forming Foam formulation comprising  $R_F$ - $Q_s$ , wherein:  $R_F$  has a greater affinity for a first part of a system having at least two parts than  $Q_s$ ;  $Q_s$  has a greater affinity for a second part of the system than  $R_F$ ; and  $R_F$  comprises at least two -CF<sub>3</sub> groups and at least two hydrogens.
  - 36. The process of claim 35 wherein R<sub>F</sub> is hydrophobic relative to Q<sub>s</sub>.
  - 37. The process of claim 35 wherein Q<sub>s</sub> is hydrophilic relative to R<sub>F</sub>.
  - 38. The process of claim 35 wherein  $R_F$  is hydrophobic and  $Q_s$  is hydrophilic.
  - 39. The process of claim 35 wherein the substrate comprises a liquid.
- 40. The process of claim 35 wherein the substrate is a part of the system.
  - 41. The process of claim 35 wherein R<sub>F</sub> comprises at least one -CH<sub>2</sub>- group.
  - 42. The process of claim 35 wherein R<sub>F</sub> comprises at least one cyclic group.
- 43. The process of claim 42 wherein the cyclic group comprises an aromatic group.
- 20 44. The process of claim 35 wherein R<sub>F</sub> comprises at least one (CF<sub>3</sub>)<sub>2</sub>CF- group.

- 45. The process of claim 35 wherein  $R_F$  comprises at least three - $CF_3$  groups.
- 46. The process of claim 35 wherein R<sub>F</sub> comprises at least two (CF<sub>3</sub>)<sub>2</sub>CF- groups.
- 47. The process of claim 35 wherein  $R_{\text{F}}$  comprises at least four carbons and one of the four carbons comprises a -CH<sub>2</sub>- group.

5 48. The process of claim 35 wherein  $R_{\text{F}}\text{-}Q_{\text{s}}$  is

$$\bigcap_{\mathsf{R}_{\mathsf{F}}} \bigvee_{\mathsf{N}} \bigcap_{\mathsf{O}} \bigoplus_{\mathsf{O}} \bigoplus_{\mathsf{O}} \bigcap_{\mathsf{O}} \bigoplus_{\mathsf{O}} \bigoplus_{\mathsf{O}} \bigcap_{\mathsf{O}} \bigcap_{\mathsf{O}} \bigoplus_{\mathsf{O}} \bigcap_{\mathsf{O}} \bigcap_{$$

49. The process of claim 35 wherein  $R_F-Q_S$  is  $R_F$ 

50. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $^{R_F}$ 

51. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is <sup>R<sub>F</sub></sup>

52. The process of claim 35 wherein  $R_F$ - $Q_S$  is

53. The process of claim 35 wherein  $R_F$ - $Q_S$  is

54. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $R_F$ 

55. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $F_3$ .

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56. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $F_3$ C  $Q_s$ .

$$F_3C$$
 $F$ 
 $CF_3$ 
 $CF_3$ 
 $CG$ 
 $G$ 

57. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is

58. The process of claim 35 wherein  $R_F$ - $Q_s$  is

60. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is F

61. The process of claim 35 wherein  $R_F$ - $Q_s$  is F  $Q_s$  F .

62. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is

63. The process of claim 35 wherein  $R_F$  -  $Q_s$  is  $F_3C$   $CF_3$ .

64. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $F_3C$   $CF_3$  .

65. The process of claim 35 wherein  $R_{F}$ - $Q_{s}$  is

66. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is

67. The process of claim 35 wherein  $R_F$ - $Q_s$  is  $F_{3C}$ 

F<sub>3</sub>C.

$$F_3C$$
  $F$   $CF_3$ 

68. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is

69. The process of claim 35 wherein R<sub>F</sub>-Q<sub>s</sub> is

70. The process of claim 35 wherein  $R_{\text{F}}$ - $Q_{\text{s}}$  is

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- 71. A foam stabilizer comprising  $R_F$ - $Q_{FS}$ , wherein  $R_F$  is hydrophobic relative to  $Q_{FS}$ ,  $R_F$  comprising at least two -CF<sub>3</sub> groups and at least two hydrogens.
- 10 72. The stabilizer of claim 71 wherein R<sub>F</sub> comprises at least one -CH<sub>2</sub>- group.
  - 73. The stabilizer of claim 71 wherein R<sub>F</sub> comprises at least one cyclic group.
  - 74. The stabilizer of claim 73 wherein the cyclic group comprises an aromatic group.
    - 75. The stabilizer of claim 71 wherein R<sub>F</sub> comprises at least one (CF<sub>3</sub>)<sub>2</sub>CF- group.
  - 76. The stabilizer of claim 71 wherein R<sub>F</sub> comprises at least three -CF₃ groups.
    - 77. The stabilizer of claim 71 wherein  $R_F$  comprises at least two  $(CF_3)_2CF$ -groups.

78. The stabilizer of claim 71 wherein  $R_F$  comprises at least four carbons and one of the four carbons comprises a -CH<sub>2</sub>- group.

- 79. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is
- 5 80. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is

- 81. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is F<sub>3</sub>C F
- 82. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is  $F_3$ C  $Q_{F_8}$ .

$$F_3C$$
 $F$ 
 $CF_3$ 
 $CF_3$ 
 $CF_3$ 
 $CF_3$ 

- 83. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is
- 10 84. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is

- 85. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is <sub>F</sub>
- 86. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is <sub>F</sub>
- 87. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is F  $Q_{Fs}$  F

$$F_3C$$
 $F_3C$ 
 $F$ 
 $CF_3$ 
 $CF_3$ 

88. The stabilizer of claim 71 wherein  $R_{\text{F}}$ - $Q_{\text{FS}}$  is

89. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is F<sub>3</sub>C CF<sub>3</sub>.

90. The stabilizer of claim 71 wherein  $R_{F}$ - $Q_{FS}$  is  $F_{3}$ C  $CF_{3}$ 

92. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is  $F_3C - \sum_{F_2}^{F_2} \sum_{F_2}^{F_2} C_{F_2}$ 

93. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is  $F_3C$   $F_3C$ 

10 94. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is  $F_3C$ 

95. The stabilizer of claim 71 wherein R<sub>F</sub>-Q<sub>FS</sub> is

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96. The stabilizer of claim 71 wherein  $R_F$ - $Q_{FS}$  is  $F_3C$   $F_3C$  X, wherein X comprises a halogen.